

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently amended) A method for identifying herbicidally active substances comprising selecting a substance which reduces or blocks the expression or the activity of the gene product of a nucleic acid or a gene, wherein[[:]]

~~——a)—— the expression or the activity of the gene product of a the nucleic acid or a gene encompassing comprises:~~

aa) a nucleic acid sequence with the sequence shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, ~~oder~~ SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51;

bb) a nucleic acid sequence which can be derived from the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, ~~oder~~ SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 by backtranslation owing to the degeneracy of the genetic code;

cc) a nucleic acid sequence which is a derivative or a fragment of the nucleic acid sequences shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, ~~oder~~ SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO:

41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51 and which has at least 60% homology at the nucleic acid level;

dd) a nucleic acid sequence which encodes derivatives or fragments of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, ~~oder~~ SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 and which have at least 50% homology at the amino acid level;

ee) a nucleic acid sequence which encodes a fragment or an epitope of a polypeptide which binds specifically to an antibody, the antibody specifically binding to a polypeptide which is encoded by the sequence shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, ~~oder~~ SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51;

ff) a nucleic acid sequence which encodes a fragment of a nucleic acid shown in aa) and which has a translation releasing factor activity; a cobalamin synthase activity, an arginyl-tRNA synthase activity, an RNA helicase activity, a GTP binding protein activity, a pseudouridylate synthase activity, an adenylate kinase activity, a preprotein translocase secA precursor protein activity, a DCL protein activity, an arginine-tRNA ligase activity, a plastidial glutathione reductase activity, a transcription factor sigma activity, a calmodulin activity, an INT6 activity, a helicase YGL150c activity, an RNA-binding activity, a heat shock transcription factor activity, a chloroplastidial DNA nucleoid binding activity or a Met2-type cytosine DNA methyltransferase activity; and/or

gg) a nucleic acid sequence which encodes derivatives of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, ~~or~~ SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO. 52 and which has at least 20% homology at the amino acid level and has an equivalent biological activity;

or

~~_____ b) _____ the expression or activity of wherein the gene product comprises~~ an amino acid sequence which is encoded by a nucleic acid sequence of aa) to gg);

~~_____ is influenced and such substances which reduce or block the expression or the activity are selected.~~

2. (Currently amended) A ~~The method as claimed in~~ of claim 1, wherein the expression or the activity of the nucleic acid or the ~~protein~~ gene product is reduced or blocked by reducing or blocking the

- a) transcription,
- b) translation,
- c) processing and/or
- d) modification

of the nucleic acid sequence or amino acid sequence in claim 1.

3. (Currently amended) A ~~The method as claimed in~~ of claim 1 ~~or 2~~, wherein the activity of the nucleic acid or of the protein is reduced or blocked by a low-molecular-weight substance.

4. (Currently amended) ~~A The method as claimed in any of claims 1 to 3 of claim 1,~~
wherein the identification of the substances is carried out in a high-throughput screening (HTS).
5. (Currently amended) ~~A The method as claimed in one of claims 1 to 4 of claim 1,~~
wherein the selected substances are applied to a plant in order to test the herbicidal activity of the
substances and the substances which show herbicidal activity are selected.
6. (Currently amended) ~~A The method as claimed in one of claims 1 to 5 of claim 1,~~
wherein the method is carried out in an organism.
7. (Currently amended) ~~A The method as claimed in one of claims 1 to 6 of claim 6,~~
wherein bacteria, yeasts, fungi or plants are used as the organism.
8. (Currently amended) ~~A The method as claimed in one of claims 1 to 7 of claim 1,~~
wherein the method is carried out in an organism ~~is used~~ which is a conditional or natural mutant
of one of the sequences described in claim 1.
9. (Previously presented) A nucleic acid construct comprising a nucleic acid sequence as
~~shown in claim 1 selected from the group consisting of~~
a) a nucleic acid sequence with the sequence shown in SEQ ID NO: 1, SEQ ID NO:
3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID
NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25,
SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID
NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47,
SEQ ID NO: 49 or SEQ ID NO: 51;

b) a nucleic acid sequence which can be derived from the amino acid sequences
shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ

ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 by backtranslation owing to the degeneracy of the genetic code;

c) a nucleic acid sequence which is a derivative or a fragment of the nucleic acid sequences shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51 and which has at least 60% homology at the nucleic acid level;

d) a nucleic acid sequence which encodes derivatives or fragments of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 and which have at least 50% homology at the amino acid level;

e) a nucleic acid sequence which encodes a fragment or an epitope of a polypeptide which binds specifically to an antibody, the antibody specifically binding to a polypeptide which is encoded by the sequence shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ

ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51;

f) a nucleic acid sequence which encodes a fragment of a nucleic acid shown in a) and which has a translation releasing factor activity; a cobalamin synthase activity, an arginyl-tRNA synthase activity, an RNA helicase activity, a GTP binding protein activity, a pseudouridylate synthase activity, an adenylate kinase activity, a preprotein translocase secA precursor protein activity, a DCL protein activity, an arginine-tRNA ligase activity, a plastidial glutathione reductase activity, a transcription factor sigma activity, a calmodulin activity, an INT6 activity, a helicase YGL150c activity, an RNA-binding activity, a heat shock transcription factor activity, a chloroplastidial DNA nucleoid binding activity or a Met2-type cytosine DNA methyltransferase activity; and/or

g) a nucleic acid sequence which encodes derivatives of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 and which has at least 20% homology at the amino acid level and has an equivalent biological activity,

wherein the nucleic acid sequence is linked to one or more regulatory signals.

10. (Currently amended) A substance identified by a the method ~~as claimed in one of claims 4-8 of claim 1~~, wherein the substance ~~having~~ has a molecular weight of less than 1000 daltons and more than 50 daltons and a K_i value of less than 10^{-7} M.

11. (Currently amended) A substance identified by a the method ~~as claimed in one of claims 4-8 of claim 1~~, wherein the substance ~~being~~ is a proteinogenic substance or an antisense RNA.

12. (Currently amended) A The substance as claimed in claim 11, wherein the substance being is an antibody against the protein encoded by one of the sequences shown in claim 9 a nucleic sequence selected from the group consisting of

a) a nucleic acid sequence with the sequence shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51;

b) a nucleic acid sequence which can be derived from the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 by backtranslation owing to the degeneracy of the genetic code;

c) a nucleic acid sequence which is a derivative or a fragment of the nucleic acid sequences shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51 and which has at least 60% homology at the nucleic acid level;

d) a nucleic acid sequence which encodes derivatives or fragments of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID

NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30, SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52 and which have at least 50% homology at the amino acid level;

c) a nucleic acid sequence which encodes a fragment or an epitope of a polypeptide which binds specifically to an antibody, the antibody specifically binding to a polypeptide which is encoded by the sequence shown in SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51;

f) a nucleic acid sequence which encodes a fragment of a nucleic acid shown in a) and which has a translation releasing factor activity; a cobalamin synthase activity, an arginyl-tRNA synthase activity, an RNA helicase activity, a GTP binding protein activity, a pseudouridylate synthase activity, an adenylate kinase activity, a preprotein translocase secA precursor protein activity, a DCL protein activity, an arginine-tRNA ligase activity, a plastidial glutathione reductase activity, a transcription factor sigma activity, a calmodulin activity, an INT6 activity, a helicase YGL150c activity, an RNA-binding activity, a heat shock transcription factor activity, a chloroplastidial DNA nucleoid binding activity or a Met2-type cytosine DNA methyltransferase activity; and/or

g) a nucleic acid sequence which encodes derivatives of the polypeptides with the amino acid sequences shown in SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, SEQ ID NO: 12, SEQ ID NO: 14, SEQ ID NO: 16, SEQ ID NO: 18, SEQ ID NO: 20, SEQ ID NO: 22, SEQ ID NO: 24, SEQ ID NO: 26, SEQ ID NO: 28, SEQ ID NO: 30,

SEQ ID NO: 32, SEQ ID NO: 34, SEQ ID NO: 36, SEQ ID NO: 38, SEQ ID NO: 40, SEQ ID NO: 42, SEQ ID NO: 44, SEQ ID NO: 46, SEQ ID NO: 48, SEQ ID NO: 50 or SEQ ID NO: 52
and which has at least 20% homology at the amino acid level and has an equivalent biological activity;
wherein the nucleic acid sequence is linked to one or more regulatory signals.

13. (Currently amended) A ~~The~~ nucleic acid construct as claimed in claim 9, wherein the nucleic acid construct additionally ~~comprising~~ comprises further nucleic acid sequences.

14. (Currently amended) A vector comprising a the nucleic acid construct ~~as claimed in of claim 9 or 13.~~

15. (Currently amended) An organism comprising at least one nucleic acid construct as claimed in claim 9 ~~or 13 or at least one vector as claimed in claim 14.~~

16. (Currently amended) ~~An~~ The organism as claimed in claim 15, wherein the organism ~~being is~~ a plant, a microorganism or a nonhuman animal.

17. (Currently amended) A transgenic plant comprising a functional or nonfunctional nucleic acid construct as claimed in claim 9 ~~or 13 or a vector as claimed in claim 14.~~

18. (Canceled).

19. (Currently amended) A method of identifying an antagonist of proteins which are encoded by a nucleic acid sequence as claimed in claim 9 ~~or 13 by following through~~ comprising the following ~~method~~ steps[.]]

- i) contacting cells which express the protein, or the protein, with a candidate substance;
- ii) testing the biological activity of the protein;

- iii) comparing the biological activity of the protein with a standard activity in the absence of the candidate substance, a reduced biological activity of the protein indicating that the candidate substance is an antagonist.

20. (Currently amended) ~~A The~~ method as claimed in claim 19, wherein the antagonist identified in accordance with claim 19, letter iii), is applied to a plant to test its herbicidal activity, and those antagonists which show a herbicidal activity are selected.

21. (Currently amended) A method of controlling undesired vegetation, which comprises allowing a herbicidally active amount of a substance identified by a the method as claimed in any of claims 1 to 8 or of an antagonist identified by a method as claimed in claim 19 or 20 of claim 1 to act on plants and/or their environment.

22. (Currently amended) ~~The use of A method for regulating the growth of a plant comprising using a substance identified by method as claimed in any of claims 1 to 8 or of an antagonist identified by a the method as claimed in claim 19 or 20 as herbicide or for regulating the growth of plants of claim 19.~~

23. (Currently amended) A method for generating modified gene products encoded by the nucleic acid sequences SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13, SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51, their derivatives or fragments as claimed in claim 1, which comprises comprising the following method steps:

- a) ~~expression of~~ expressing the proteins encoded by SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, SEQ ID NO: 11, SEQ ID NO: 13,

SEQ ID NO: 15, SEQ ID NO: 17, SEQ ID NO: 19, SEQ ID NO: 21, SEQ ID NO: 23, SEQ ID NO: 25, SEQ ID NO: 27, SEQ ID NO: 29, SEQ ID NO: 31, SEQ ID NO: 33, SEQ ID NO: 35, SEQ ID NO: 37, SEQ ID NO: 39, SEQ ID NO: 41, SEQ ID NO: 43, SEQ ID NO: 45, SEQ ID NO: 47, SEQ ID NO: 49 or SEQ ID NO: 51, their derivatives or fragments as claimed in claim 1 in a heterologous system or in a cell-free system

- b) ~~modifying the nucleic acid resulting in~~ randomized or directed mutagenesis of the protein ~~by modification of the nucleic acid,~~
- c) measuring the interaction of the modified gene product with the herbicide or the biological activity of the modified gene product in the presence of the herbicide,
- d) ~~identification of~~ identifying derivatives of the protein which exhibit a lesser degree of interaction or whose activity is less affected,
- e) testing the biological activity of the protein following application of the herbicide,
- f) ~~selection of the~~ selecting nucleic acid sequences which, or whose gene products, show a modified biological activity with regard to the herbicide.

24. (Currently amended) A ~~The~~ method as claimed in claim 23, wherein the sequences selected ~~in accordance with claim 23-f)~~ are introduced into an organism.

25. (Currently amended) A method for generating transgenic plants which are resistant to substances found by a ~~the~~ method as claimed in any of claims 1 to 8 or a method as claimed in ~~claim 19 or 20 of claim 1,~~ which comprises overexpressing, in these plants, nucleic acids with the sequences as described in claim 1.

26. (Currently amended) An organism generated by a the method as claimed in claim 23 or 24 or a method as claimed in claim 25 of claim 24.

27. (Currently amended) A composition comprising a herbicidally active amount of at least one substance identified by a the method as claimed in any of claims 1 to 8 or of an antagonist identified by a method as claimed in claim 19 or 20 of claim 1 and at least one inert liquid and/or solid carrier and, if appropriate, at least one surface active substance.

28. (Currently amended) A composition comprising a growth-regulating amount of at least one substance identified by a method as claimed in any of claims 1 to 8 or of an antagonist identified by a the method as claimed in claim 19 or 20 and at least one inert liquid and/or solid carrier and, if appropriate, at least one surface active substance.

29. (Currently amended) A composition comprising the substance as claimed in any of claims 10 to 12 or an antagonist as claimed in claim 19 of claim 10.

30. (Currently amended) A kit encompassing comprising the nucleic acid construct as claimed in of claim 9 or 13, the substance as claimed in any of claims 10 to 12, an antagonist identified as claimed in claim 19 or 20, and the composition as claimed in claim 29.